426-18 72

1900 kvass

N° 7142 A.D. 1899

RECORDED

DUPLICATE

Date of Application, 5th Apr., 1899
Complete Specification Left, 13th Dec., 1899—Accepted, 20th Jan., 1900

PROVISIONAL SPECIFICATION.

Improvements in and relating to the Making of Bread with Unground Corn.

I, PLATON RAKHMANOFF, of Hotel "Lyvadia," Tverskaya Street, Moscow, Russia, Gentleman, do hereby declare the nature of this invention to be as follows:—

According to this invention the corn, in a dry state and previously well-cleansed from any extraneous admixture, is conveyed by a worm or other suitable transporter, rotating in an open trough, the extremity of which is provided with an apparatus for continuously wetting the corn with a solution of soda. Such solution may contain 7 grammes of soda for each litre of water.

The worm, in its continuous rotating motion, produces an intimate stirring of the corn with the solution, and discharges the uniformly wetted corn in a peeling apparatus, provided with brushes and with an aspirator; this apparatus draws off the exterior coat (the cellulose) of the corn, and the aspirator withdraws the same away from the apparatus. The brushing apparatus discharges the peeled corn in a washing apparatus, consisting of a horizontal worm or its equivalent rotating in a metallic trough, traversed by an abundant current of clear water, which flows down through small apertures, perforated in the bottom of the trough. The corn, being constantly stirred and washed by the worm, is discharged in a vat, provided with a perforated double bottom; the vat is filled with the peeled and washed corn to a certain height. The water, which may have been carried in the vat with the corn, is removed by means of a cock, disposed between the double bottom of the vat and which may be closed after the whole water, contained in the corn, has run out.

Then the vat is filled with a certain bulk of an acid fermented liquid called "kvass," the preparation of which will be explained hereafter. This liquid, serving as sour leaven, may occupy the whole space between the double bottom of the vat and the whole column of the peeled grain, which is covered by the liquid to a certain depth, proportionally to the diameter of the vat. The temperature of the vat is maintained at 100 to 110° Fahr., and the whole may be left to ferment during about 12 hours. In case the corn, swollen by the absorption of the liquid, should emerge above the level of this latter; liquid may be taken from the cock, disposed between the double bottom of the vat, and poured on the emerging corn from above.

After the lapse of the 12 hours, the corn, having absorbed the maximum of the liquid and being swelled and softened, is besides sown with ferment and has taken the taste, which has been given to the "kvass" by its preparation. The cock between the double bottom of the vat is then opened and the "kvass," which has not been absorbed by the corn, runs in a suitable vessel. Then the soaked corn is discharged in a stirring machine, where it is stirred in a homogeneous paste or dough, which is conveyed to the kneading machine, where the dough is definitively kneaded. After this operation the dough is charged in troughs and

[*Price* 8*d*.]

submitted to the action of leavening and of fermentation, which requires 2 to 5 hours, depending upon the external temperature. The leavened and raised dough is then discharged into a moulding apparatus, by which the bread is formed and then disposed on the movable metallic sole of a continuous furnace. The sole being charged with loaves or other forms of bread, is shifted in the furnace, and the bread is subjected to the baking process which requires from 2 to 2½ hours. When the bread is sufficiently baked, the movable sole is withdrawn from the furnace, and the hot bread is removed and stored in a suitable room for cooling before being sold.

The method of preparation of the liquid, known under the name of "kvass" and destined, among the rest, as hereinbefore stated, to produce the fermentation of the bread-dough, consists in the following.

In a special mash tank, provided with a stirring device fresh soaked corn is mashed with green malt, and then heated (as is ordinarily done with yeast wort in the distillation of brandy) to a temperature of 154° to 163° Fahr.

A resulting dense and very sweet mass is left to cool and to enter into an acid fermentation. When the temperature will abate to 118—127° Fahr., and after the malic acid has been produced during the fermentation of the mass, this latter is diluted with water, previously boiled and cooled, in a proportion corresponding to about 13 pints or say 7½ litres of liquid for each kilogramme or two pounds 3 ounces of solid matter applied. This liquid is thoroughly stirred in the mash tank, then suitable savour is given to it and it will be heated again to 100—111° Fahr., and sown with pressed yeast.

The liquid obtained by this method, is used, as before explained, as leaven for the dough of unground corn. The surplus of the liquid, removed from the vat, cooled and bottled off, may serve as an excellent hygienic drink of excellent savour and perfectly pure.

It is obvious, that the savour of the "kvass," its degree of acidity and its aroma depends upon the matters used and upon the temperatures applied in the manufacture and that this savour and aroma are transmitted to the dough manufactured with this liquid. By this process it is readily possible to communicate to the bread the desired savour and aroma and to bake it more or less sour, partially sour or sweet,—but ever perfectly hygienic and sown with ferments of malic acid, and not of lactic acid, as is now the case, when sour leaven is used in the form of old dough at the point of decomposition. The absolute pureness of this bread and its nutritive qualities depend upon the herein described method of manufacturing it, which excludes any manipulation with the dough by the hands of workmen, and which includes the continuous and abundant washing up of the matter with a water current; moreover this method provides for an always equal quality of the product, which depends in no way upon accidental circumstances. The bread thus prepared, besides other qualities, possesses the one of keeping "new" a very long time without becoming stale and hard.

Dated the 5th day of April 1899.

WM. BROOKES & SON,
55 & 56, Chancery Lane, London, Agents for the Applicant.

COMPLETE SPECIFICATION.

Improvements in and relating to the Making of Bread with Unground Corn.

I, PLATON RAKHMANOFF, of Hotel "Lyvadia," Tverskaya Street, Moscow, Russia, Gentleman, do hereby declare the nature of this invention and in what

manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

According to this invention, the corn, in a dry state and previously well cleansed from any extraneous admixture, is conveyed by a worm or other suitable transporter, rotating in an open trough, the extremity of which is provided with an apparatus for continuously wetting the corn with a solution of soda. Such solution may contain 7 grammes of soda for each litre of water.

The worm, in its continuous rotating motion, produces an intimate stirring of the corn with the solution, and discharges the uniformly wetted corn in a peeling apparatus, provided with brushes and with an aspirator; this apparatus draws off the exterior coat (the cellulose) of the corn, and the aspirator withdraws the same away from the apparatus. The brushing-apparatus discharges the peeled corn in a washing apparatus, consisting of a horizontal worm or its equivalent rotating in a metallic trough, traversed by an abundant current of clear water, which flows down through small apertures, perforated in the bottom of the trough. The corn, being constantly stirred and washed by the worm, is discharged in a vat, provided with a perforated double bottom; the vat is filled with the peeled and washed corn to a certain height. The water, which may have been carried in the vat with the corn, is removed by means of a cock, disposed between the double bottom of the vat and which may be closed after the whole water, contained in the corn, has run out.

Then the vat is filled with a certain bulk of an acid fermented liquid called "kvass," the preparation of which will be explained hereafter. This liquid, serving as sour leaven, may occupy the whole space between the double bottom of the vat and the whole column of the peeled grain, which is covered by the liquid to a certain depth, proportionally to the diameter of the vat. The temperature of the vat is maintained at 100 to 110° Fahr. and the whole may be left to ferment during about 12 hours. In case the corn, swollen by the absorption of the liquid, should emerge above the level of this latter; liquid may be taken from the cock, disposed between the double bottom of the vat, and poured on the emerging corn from above.

After the lapse of the 12 hours, the corn, having absorbed the maximum of the liquid and being swelled and softened is besides sown with ferment and has taken the taste, which has been given to the "kvass" by its preparation. The cock between the double bottom of the vat is then opened and the "kvass," which has not been absorbed by the corn, runs in a suitable vessel. Then the soaked corn is discharged in a stirring machine, where it is stirred in a homogeneous paste or dough, which is conveyed to the kneading machine, where the dough is definitively kneaded. After this operation the dough is charged in troughs and submitted to the action of leavening and of fermentation, which requires 2 to 5 hours, depending upon the external temperature. The leavened and raised dough is then discharged into a moulding apparatus by which the bread is formed and then disposed on the movable metallic sole of a continuous furnace. The sole being charged with loaves or other forms of bread, is shifted in the furnace, and the bread is subjected to the baking process which requires from 2 to 2½ hours. When the bread is sufficiently baked, the movable sole is withdrawn from the furnace and the hot bread is removed and stored in a suitable room for cooling before being sold.

The method of preparation of the liquid, known under the name of "kvass" and destined, among the rest, as hereinbefore stated, to produce the fermentation of the bread dough, consists in the following.

In a special mash tank or vessel provided with a stirring device fresh soaked corn is mashed with green malt, and then heated (as it ordinarily done with yeast-wort in the distillation of brandy) to a temperature of 154° to 163° Fahr.

A resulting dense and very sweet mass is left to cool and to enter into an acid fermentation. When the temperature will abate to 118—127° Fahr., and after

the malic acid has been produced during the fermentation of the mass, this latter is diluted with water previously boiled and cooled, in a proportion corresponding to about 13 pints or say 7½ litres of liquid for each kilogramme or two pounds three ounces of solid matter applied.

This liquid is thoroughly stirred in the mash tank, then suitable savour is given to it and it will be heated again to 100—111° Fahr. and sown with pressed yeast. The liquid, obtained by this method, is used, as before explained, as leaven for the dough of unground corn. The surplus of the liquid, removed from the vat, cooled and bottled off, may serve as an excellent hygienic drink of excellent savour and perfectly pure.

It is obvious, that the savour of the "kvass," its degree of acidity and its aroma depends upon the matters used and upon the temperatures applied in the manufacture and that this savour and aroma are transmitted to the dough manufactured with this liquid. By this process it is readily possible to communicate to the bread the desired savour and aroma and to bake it more or less sour, partially sour or sweet,—but ever perfectly hygienic and sown with ferments of malic acid, and not of lactic acid, as is now the case, when sour leaven is used in the form of old dough at the point of decomposition. The absolute pureness of this bread and its nutritive qualities depend upon the herein described method of manufacturing it, which excludes any manipulation with the dough by the hands of workmen, and which includes the continuous and abundant washing up of the matter with a water current; moreover this method provides for an always equal quality of the product, which depends in no way upon accidental circumstances. The bread thus prepared besides other qualities possesses the one of keeping "new" a very long time without becoming stale and hard.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:—

1. A method of making bread by means of corn which has been peeled or has had its exterior coat removed obtained by a special treatment of the corn by a solution of soda as set forth.

2. In a method of making bread the treatment of the dough by special liquid, called "kvass," with the view of giving to the baked bread the desired savour and aroma as set forth.

3. The herein described method of manufacturing bread by the combined employment of the methods claimed in Claims 1 and 2.

Dated the 13th day of December 1899.

WM. BROOKES & SON,
55/56, Chancery Lane, London, Agents for the Applicant.

Redhill: Printed for Her Majesty's Stationery Office, by Malcomson & Co., Ltd.—1900.